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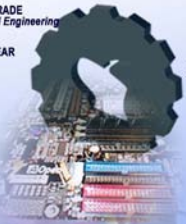
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**BOOK OF ABSTRACTS**

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Agricultural Engineering**

**ISAE-2017**



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## FABRICATION AND APPLICATIONS OF MULTIFUNCTIONAL NANOSTRUCTURED TiO<sub>2</sub>

Jelena Vujancevic<sup>1</sup>, Andjelika Bjelajac<sup>2</sup>, Vera Pavlovic<sup>3</sup>, Branislav  
Vlahovic<sup>4,5</sup>, Djordje Janackovic<sup>2</sup>, Vladimir Pavlovic<sup>6,1</sup>

<sup>1</sup>Institute of Technical Sciences of SASA, Belgrade, Serbia

<sup>2</sup>Faculty of Technology, University of Belgrade, Serbia

<sup>3</sup>Faculty of Mechanical Engineering, University of Belgrade, Serbia

<sup>4</sup>North Carolina Central University, Durham, NC, USA

<sup>5</sup>NASA University Research Center for Aerospace Device Research and Education and  
NSF Center of Research Excellence in Science and Technology Computational Center  
for Fundamental and Applied Science and Education, North Carolina, USA

<sup>6</sup>Faculty of Agriculture, University of Belgrade, Serbia

E-mail: vlaver@agrif.bg.ac.rs

**Abstract.** *Nanomaterials development is a rapidly emerging field of research with enormous potential for societal and economic benefits. In agro and food industries dimension-dependent properties or phenomena of nanomaterials may be used for various functional effects such as increased bioavailability or decreased toxicity of products, better detection of pathogens, improved food packaging materials, or improved delivery of nutrients. Since these effects may derive from altered or unique characteristics of materials in the nanoscale range that are not normally observed or expected in larger-scale materials with the same chemical composition, such changes raise questions about the safety, effectiveness, performance, quality or public health impact of nanotechnology products. In this article we have reviewed the fabrication, properties, and selected applications of nanostructured TiO<sub>2</sub> based materials. Special attention has been paid to TiO<sub>2</sub> nano particles and nanotubes fabrication perspectives and their applications in agriculture. We have shown that high photocatalytic disinfection and photo biological effects of nanostructured TiO<sub>2</sub> coupled with its low price, nontoxicity, and stable performance especially provide new approaches for solving environmental pollution and pesticide residue problems in agriculture.*

**Key words:** *nanomaterials, nanoparticles, nanotubes, TiO<sub>2</sub>*



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